ORIGINAL ARTICLE

Assessment of self-reporting reading of medicine's labels and the resources of information about medicines in general public in Malaysia

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Abstract

This study was undertaken to assess the people's self-reported reading of medicine labels and its associated factors and to assess the sources of information about medicines among general public. A cross-sectional study was carried out among general public in the State of Penang, Malaysia. A total of 888 participants were conveniently selected and completed the survey. A self-administered questionnaire was used to obtain the data from all the participants. Most of the participants (74.2%) reported that they have adequate information about medicines provided on their medicine labels. In addition, 86.9% of them reported that they read their medicine's label for the directions of usage and 84.3% for the dosage instruction. However, 42.1% of the participants do not read their medicine's label for the active ingredients, and 33% of them do not read their medicine's label for the safety information. In addition, 36.5% of the respondents did not read the label of medicine for the symptoms which can be used for. However, females, Malay respondents, and higher education level (college/university) were more likely to self-reported the reading medicine's label. Females were more likely to read the labels of medicines compared with males (OR = 1.6, 95% CI 1.20-2.13, P = .001). The reading of medicine labels was predicted by females, Malay respondents, and higher educated people. Health educational programs are needed to clarify label's information that can help in concept of patient safety.

KEYWORDS
medicine information, medicine labeling, perception, public

1 | INTRODUCTION

Medicine labeling is an effective tool for providing important health information for patients.[1] The label of medicine was designed to guide the consumers to know the ingredients of medicines, instructions of dose, frequency, expiry date, storage method, and the adverse effects.[2] People who are unable to read the label were more likely to misunderstand the information on medicine's labels and package inserts, leading to misuse their medicines.[3] In Malaysia, medicine label is structured to have the supplier name, patient's name, medicine name, the directions of using medicine, the date of obtaining medicine, and the registration number of medicine.[1] Doctors usually have no enough time to explain information about the prescribed medicines to their patients as they are mostly providing

details about the illness or condition that the patients are complaining of them.[4] Furthermore, information from pharmacists is also inadequate.[4,5] Consequently, many patients depend on written information such as medicine's label or medicine's leaflet.[5] Labeling of medicines can help to educate the patients and contribute to avoid any potential misperceptions among them, especially when they have been prescribed with more than one medicine.[4]

Labeling of medicines is a strong factor in building up a healthy community, and it also reflects the quality of prescribing and dispensing in the community.[6] In other words, the knowledge of medicine in the community can be evaluated by the level of understanding their medicine's labeling.[5,6] Previous study has shown that there is an association between higher levels of education or higher knowledge scores of medicines and better interpretation of auxiliary labels.[7] Reading the basic information of medicine labels is an important factor for using medicine appropriately. Information on medicine labels is a main source of knowledge for patients to understand the risks and benefits of medicines and use them safely and effectively.[4,8]

Regarding the sources of information about medicines, a previous study reported that medicine information is often obtained from modern healthcare professionals, followed by the internet as a source of medicinal information as well. Doctors are the most common source of information at 61%, followed by pharmacist, 49% and nurse, 14%. Only 9% of the respondents choose internet as their source of medicine information.[9] Another study showed that the respondents from younger age groups have higher tendency to use information from internet as their source when it comes to look for medicine information.[10] However, some people are still have low awareness regarding the ideal sources of information about medicines.[11] They are advised by their family or friends to try the treatment and very few of them will refer to doctors. The medicine information resource is an important aspect for public to get access to better health.[12] In general, the sources of information about medicines are physician and pharmacist. Patients are commonly tended to obtain information about medicines from various channels such as advertising, mass media, and the internet.[12,13] However, medicine information sources are a huge matter for patients to understand their medicine's usage.[14] This study will help to describe the common practices for obtaining medicine information among general public in the State of Penang, Malaysia. The objectives of this study were to assess the perception of the general public toward the reading of medicine labels and to find the factors influencing public's perception on the reading of medicine labels, as well as to describe the sources of information about medicines among general public.

2 | MATERIALS AND METHODS

2.1 | Study design

Across-sectional survey was carried out among people aged over 18 years old and above from both gender and different ethnic backgrounds. This study was undertaken between September and November 2015. People who are able to read and write in Malay language were invited to participate in the survey. This study was approved by "Joint Ethics Committee of the School of Pharmaceutical Sciences, USM—Hospital Lam Wah Ee on Clinical Studies" (USM-HLWE/IEC/2015 [0001]).

2.2 | Sampling and sample size

A convenience sampling method was used to recruit the participants from a household areas in the northeast of Penang Island. The participants of this study were selected from urban areas. Cochran's equation was used to calculate the sample size in this survey and to yield a representative sample for proportions.[15] The sample size was calculated based on the confidence level of 95% and 5% of margin of error. The required sample size was 377. By using the common design effect of 2, the required sample size was 769. In addition, another 20% was added to our sample in case of missing and dropping data, to be in total 923 participants. For the purpose of study, 1000 people were invited to participate in this survey.

2.3 | Data collection

A self-administered questionnaire was used to assess public's self-reported reading of information on medicine labels. The questionnaire was developed based on previous studies relating to study topic.[14,16] The developed questionnaire was translated into Malay language by qualified linguistic translator and expert in the field of pharmacy practice to ensure the accuracy and clarity of the questionnaire. The face and content validity were checked by 2 lecturers from the School of Pharmaceutical Sciences, Universiti Sains Malaysia, and then was pretested and piloted with 45 respondents from the public to ensure the clarity of the questions. In addition, the internal consistency of the questions was calculated using Cronbach's alpha which indicates an acceptable value of 0.918 for 6 items. The developed questionnaire consists of three parts. The first part was used for obtaining the socio-demographic information of the respondents. The second part includes questions on medicine labeling by focusing on the most information provided on the label of medicines. The last part includes questions about the sources of information about medicines. The participants were visited house to house in the residential area for data collection. After explaining the aim of the study, a self-administered questionnaire was used to obtain the data from participants. Most of the participants responded at the same time of distributing the questionnaires, while some of them responded later and returned the questionnaire on the next days. The questionnaire was completed within ~10 to 15 minutes.

2.4 | Data analysis

The data were coded and analyzed using SPSS (version 18.0, SPSS Inc., Chicago, IL). Descriptive analysis including frequencies and

percentages were used to describe the distribution of the responses. For the self-reporting items, each item had 3 responses ("yes," "no," and "not sure"). The scoring method was used for analysis. Respondents who responded "yes" for self-reported reading of medicine label was given a score of 1, and the respondents who responded "no" or "not sure" for reading their medicine labels was given 0. The normality of total score was tested by using Kolmogorov-Smirnov test which indicated a skewed data ($P<.05$). Accordingly, nonparametric test was applied by using Mann-Whitney test to find the differences between 2 factors such as gender and the presence of chronic disease. In addition, Kruskal-Wallis test was used to find the differences between age groups, ethnicity, education level, occupation, living status, and monthly income. However, logistic regression was applied to predict the factors which highly contributed to self-reported reading the label of medicines. The P-value of $<.05$ with a confidence level of 95% was considered significant.

3 | RESULTS

3.1 | Socio-demographic information of the participants

As shown in Table 1, 25.4% and 29.4% of the participants were from the age groups of 18-24 and 25-34, respectively. Most of the participants (59.5%) were females, whereas 40.5% of them were males. Regarding the ethnic groups, more than half of them (53.2%) were Malay, whereas 31.2% and 13.1% of them were Chinese and Indian, respectively. Out of 1000 questionnaires distributed, 888 of them were filled and returned successfully, indicating a response rate of 88.8%.

3.2 | Participants' self-reported reading of medicine labels

As shown in Table 2, the majority of the respondents (74.2%) reported the adequacy of information provided on their medicine labels. In addition, most of the respondents (86.9%) reported that they read their medicine's label for the directions of usage and 84.3% of them read their medicine's label for the dosage instruction. However, around 42.1% of the respondents do not read the active ingredients on their medicine's label and 33% of them do not read their medicine's label for the safety information. In addition, 36.5% of the respondents did not read the label of medicine for the symptoms which can be used for.

3.3 | Factors influencing the reading of medicine labels

From Table 3, it is shown that the respondents of this study have good perception toward reading the basic information on their medicine labels (mean = 4.34 ± 1.76). However, the total score of perception was influenced by some factors. There were significant

TABLE 1 Socio-demographic information of the participants

Variable	N (%)
Age group	
18-24	226 (25.4)
25-34	261 (29.4)
35-44	161 (18.1)
45-54	135 (15.2)
55-64	69 (7.8)
65 and above	36 (4.1)
Gender	
Male	360 (40.5)
Female	528 (59.5)
Race	
Malay	472 (53.2)
Chinese	277 (31.2)
Indian	116 (13.1)
Others	23 (2.5)
Education level	
No formal education	28 (3.2)
Primary school	69 (7.8)
Secondary school	283 (31.9)
College/university	508 (57.2)
Occupation	
Government	148 (16.7)
Private/self Employed	410 (46.2)
Retired	42 (4.7)
Student	207 (23.3)
Unemployed	81 (9.1)
Living status	
Alone	235 (26.5)
With family	629 (70.8)
With nonfamily	24 (2.7)
Monthly income[a]	
≤RM 1000	260 (29.3)
RM 1001-2000	159 (17.9)
RM 2001-3000	186 (20.9)
RM 3001-4000	111 (12.5)
RM 4001-5000	72 (8.1)
>RM 5000	100 (11.3)
Chronic disease	
Yes	131 (14.8)
No	757 (85.2)

[a]RM1 = 0.23USD.

differences between the total score of perception and the age group, gender, ethnicity, education level, and monthly income ($P<.05$).

From Table 4, logistic regression analysis was applied to predict the factors which highly contributed to good self-reported reading of medicine labels. This study indicated that females were more

TABLE 2 Self-reported reading of medicine labels among the participants

	Yes [+] (%)	No [−] (%)	Not sure [−] (%)
1. Every time you are supplied with medicines, are you given adequate information on your medicine labels? (Medicine label includes patient's name, drug's name and strength, dosing, frequency, method of administration, supplier/premise name, and supplied date	659 (74.2%)	229 (25.8%)	—
2.a. Do you read your medicine labels for the name of medicine?	514 (57.9%)	243 (27.4%)	131 (14.7%)
2.b. Do you read the medicine label for the safety information?	595 (67.0%)	180 (20.3%)	113 (12.7%)
2.c. Do you read the label for the direction of usage for the medicine?	722 (86.9%)	72 (8.1%)	44 (5.0%)
2.d. Do you read the label for the dosage instruction of your medicine?	754 (84.9%)	84 (9.5%)	50 (5.6%)
2.e. Do you read the label for the symptoms it is used for?	564 (63.5%)	207 (23.3%)	117 (13.2%)

[+], good perception; [−], bad perception.

likely to read the labels of medicines compared with males (OR = 1.6, 95% CI 1.20-2.13, P = .001). Malay respondents were more likely to self-reported reading the label of medicines compared with Chinese and Indian respondents. In addition, those with a college/university education level were almost 3 times more likely to have higher score of self-reported reading of medicine labels (OR = 2.76, 95% CI 1.15-6.64, P = .023).

3.4 | Medicine information resources

As shown in Figure 1, the first source of information about medicines among the respondents was the doctor (57.8%). Only 19.5% of the respondents referred to the pharmacist as a first person to consult concerning medicines and 15.8% stated for medical assistant. Very few of them claimed other sources such as friends (3.6%), family member (1.7%) and nurse (1.7%) as a first person to consult concerning medicines.

As shown in Table 5, more than third of the respondents (38.6%) reported that they have difficulties to obtain information about their medicines from government doctor. In addition, 46.3% of the respondents faced difficulties in obtaining medicine information from government pharmacist. However, the majority of them (67%) indicated that they can easily get information about their medicines

TABLE 3 Self-reported reading of medicine labels based on demographic information of the participants (average 0-6)

Socio-demographic	Self-reported reading total score Mean ± SD	Median	P-value
Age group			
18-24	4.45 ± 1.51	5.0	.047*
25-34	4.62 ± 1.48	5.0	
35-44	4.35 ± 1.80	5.0	
45-54	4.04 ± 2.01	4.0	
55-64	3.91 ± 2.22	5.0	
65 and above	3.53 ± 2.31	4.5	
Gender			
Male	4.16 ± 1.84	4.0	.019**
Female	4.46 ± 1.69	5.0	
Ethnicity			
Malay	4.67 ± 1.57	5.0	<.001*
Chinese	4.05 ± 1.93	5.0	
Indian	3.69 ± 1.77	4.0	
Others	4.21 ± 1.67	5.0	
Education level			
No formal education	3.14 ± 1.99	3.0	<.001*
Primary school	3.71 ± 2.00	4.0	
Secondary school	4.26 ± 1.88	5.0	
College/university	4.53 ± 1.58	5.0	
Occupation			
Government	4.45 ± 1.71	5.0	.116
Private/self employed	4.33 ± 1.80	5.0	
Retired	4.04 ± 2.26	5.0	
Student	4.53 ± 1.47	5.0	
Unemployed	3.87 ± 1.90	4.0	
Living status			
Alone	4.56 ± 1.62	5.0	.137
With family	4.26 ± 1.81	5.0	
With nonfamily	4.37 ± 1.61	4.5	
Monthly income[a], Malaysian Ringgit (RM)			
Low	4.27 ± 1.75	5.0	.053
Moderate	4.55 ± 1.62	5.0	
High	4.16 ± 1.96	5.0	
Chronic disease			
Yes	4.04 ± 2.08	5.0	.251
No	4.38 ± 1.69	5.0	

[a]Monthly income: (≤RM1000 and RM1001-RM2000) = low, (RM2001-RM4000) = moderate, (RM4001-RM5000 and >RM5000) = high.
*Kruskal-Wallis test P < .05.
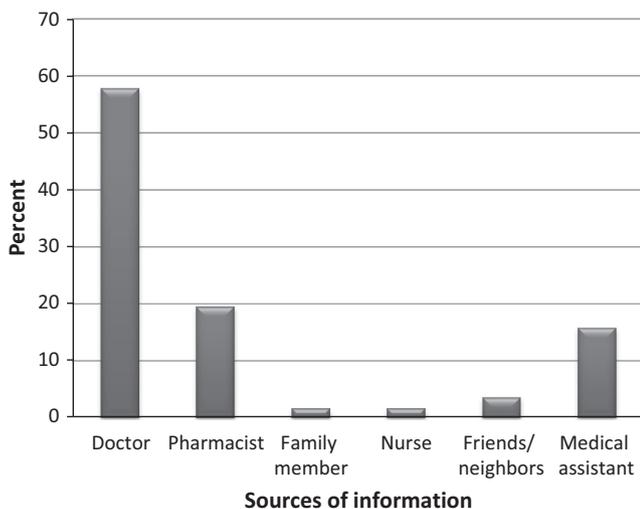**Mann-Whitney test P < .05.

from private doctor; and 65.7% of them from community pharmacists.

For other sources of information about medicines, Table 6 shows that most of the people (58.3%) used to obtain information from

TABLE 4 Predicted factors for the self-reported reading of medicine labels

Variables	OR (95% CI)
Age group	
18-24	1
25-34	1.30 (0.89-1.89)
35-44	1.22 (0.79-1.89)
45-54	1.03 (0.65-1.65)
55-64	1.12 (0.62-2.03)
65 and above	1.73 (0.77-3.92)
Gender	
Male	1
Female	1.60 (1.20-2.13)*
Ethnicity	
Malay	1
Chinese	0.62 (0.45-0.84)*
Indian	0.33 (0.21-0.51)*
Others	0.64 (0.27-1.53)
Education level	
No formal education	1
Primary school	1.31 (0.50-3.42)
Secondary school	2.70 (1.12-6.49)
College/university	2.76 (1.15-6.64)*

*Statistically significant $P < .05$.

TABLE 5 The proportion of respondents who easily obtain medicine information from health providers

Is it easy to obtain medicine information from	Yes	No
a. Government doctor	545 (61.4%)	343 (38.6%)
b. Private doctor	595 (67.0%)	293 (33.0%)
c. Government pharmacist	477 (53.7%)	411 (46.3%)
d. Community pharmacist	583 (65.7%)	305 (34.3%)

FIGURE 1 The first source of medicine information among the respondents

doctors, pharmacists, and nurses, while around half of the respondents (48.9%) were more likely to obtain information from the internet.

4 | DISCUSSION

In the present study, it was found that the respondents were reported the adequacy of information provided on the label of medicines. Most of the respondents indicated that they read the label of medicine for the direction of usage and the instructions of dosage. However, some of them do not read the label for the name of medicine, the safety information, and the indications of using medicines. Similar findings from previous research indicated that patients have a tendency to read the labels of medicines for the information of dosage, method of administration, and frequency of using medicines. The appropriate practice of reading on medicine labels is a significant part of illness management.[1,6,17]

However, the perception of reading the label of medicines was influenced by the age group. Other studies which indicated that older age group are less likely to read the label of medicines or even to ask more details about their medicines.[1,14] Elderly patients have shown difficulty in reading and understanding the label of medicines.[18] In the present study, there was no predicted age group to be more likely to have a good perception of reading the label of medicines. This is probably due to the current knowledge among the respondents that they should read the label of medicines before using them. The program of quality use of medicine in Malaysia which was started since 2008 aims to help the people to understand the appropriate use of medicines by providing health education program on medicine labels and other aspects of using medicines.[14] Additionally, female respondents were significantly more likely to read medicine labels compared with male respondents. Previous study showed that males were more frequent to ask about clarifications of the label of medicines. Any misunderstanding about the information provided on medicine labeling makes the patients confused to use them appropriately.[1] Other studies showed that the reading of medicine labeling was associated with females.[14,16] In fact, female is more involved to get information about health-related issues compared with males.

With regard to the education level, this study indicated that the education level has an impact on the perception of reading the label of medicine. Previous studies reported that people who have no formal education were significantly stated not to read the label of medicines due to their misunderstanding about the information provided on medicine's labeling.[7,19] Another study indicated that low educated people had less understanding about the warning label of prescribed medicines.[20] Educated people were more likely to read the label of medicines compared with people with low education level. This probably because people with higher education level have better understanding about the label of medicine and have a tendency to know more about their medicines.[7]

TABLE 6 Frequency of obtaining medicine information from different information channels

How often do you obtain medicine information from	Often	Seldom	Never
a. Printed materials (magazines, newspapers)	258 (29.0%)	435 (49.0%)	195 (22.0%)
b. Internet	434 (48.9%)	286 (32.2%)	168 (18.9%)
c. Common information and entertainment channels (TV, radio)	257 (28.9%)	424 (47.7%)	207 (23.4%)
d. Modern healthcare professionals (doctors, pharmacists, nurses)	518 (58.3%)	285 (32.1%)	85 (9.6%)
e. Traditional and complimentary practitioners (shaman, sinseh)	102 (11.5%)	295 (33.2%)	491 (55.3%)
f. Friends, family, and neighbors	374 (42.1%)	369 (41.6%)	145 (16.3%)

With regard to the ethnic backgrounds, this study indicated that Malay respondents were more likely to self-reported reading the medicine labels compared with Chinese and Indian respondents. Similar findings were reported from other studies in Malaysia, which indicated that Chinese people were significantly associated with less reading of medicine labeling compared with other ethnic backgrounds.[1,16] This result might be due to the difficulty of understanding among them to read the information of medicine labeling or may be associated with other confounding factors such as people interests in receiving written information.

In the present study, the respondents referred to doctor and pharmacist as the main sources of information. This finding is supported by previous study that the doctor and pharmacist were considered as the most common source of information about medicines, while some patients stated other sources such as advertisements, mass media, and the internet.[13] Another study reported that consumers obtain their information from their friends or relatives, while others gain their information from healthcare professionals, such as physician, pharmacist, or nurse.[21] In addition, the respondents were more easy to get medicine information from private doctor and community pharmacist. In contrast to previous studies in Malaysia which indicated that the ease of obtaining information about medicines was associated with government doctor and government pharmacists.[14,16] This might be due to the experience of the respondents in private health facilities that they get more attention from the doctor and pharmacist in informing them about their medicines. However, this study showed that internet, friends, family and neighbors, and printed materials were common sources of information about medicines. The insufficient information and poor attention from doctors seem to be associated with using other information sources,[22] whereas some patients get information about medicines from other sources such as internet or magazines.[23] However, the inappropriate practices of using medicines can be associated with incorrect beliefs created by such informal sources of information.

4.1 | Study limitations

This study was limited to assess the perception toward the readings of medicine labeling. This study cannot show the level of understanding of information provided on the label of medicines. In addition, the health literacy was not evaluated in this study. Inadequate health literacy is significantly influencing the behavior of reading and understanding any written information on the label. However, the sampling method of this study was limited to convenience sampling which cannot be generalized to the overall population in the country.

5 | CONCLUSION

This study showed that some people are still having poor perception toward the importance of reading the basic information on their medicine labels, especially in terms of the name of medicines, safety information, and indications of use. The perception of reading the information of medicine labels was predicted by females, Malay respondents, and higher educated people. Healthcare professionals especially the pharmacist should play a major role in communicating with the patients about the information provided on the label. Health educational programs are needed to clarify label's information that can help in the concept of patient safety. However, some respondents are still depending on informal sources about medicines, such as friends, family, and relatives. More efforts are needed to increase the awareness about the reliable information about medicines that can be obtained from the internet.

DISCLOSURES

The authors declare no disclosures.

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